Patent Claims

1. A holding device having an oscillatory ultramicrotome cutter (2), wherein the cutter (2) is arranged on a cutter holder (1) and can be set oscillating by means of a piezoelectric element (3), characterized in that the cutter (2) is supported by the piezoelectric element (3).

2. The holding device as claimed in claim 1, characterized in that the cutter is otherwise freely suspended.

3. The holding device as claimed in either of claims 1 and 2, characterized in that the piezoelectric element (3) has a first supporting surface (30) that is fastened on the cutter holder (1), and in that it has a second supporting surface (31), on which the cutter (2) is fastened.

4. The holding device as claimed in one of claims 1 to 3, characterized in that the cutter (2) is of unipartite design and preferably consists of diamond.

5. The holding device as claimed in one of claims 1 to 4, characterized in that the cutter (2) can be set oscillating in a fashion at least approximately parallel to its cutting edge (21).

6. The holding device as claimed in claim 5, characterized in that the piezoelectric element (3) has a piezoelectric crystal or a piezoelectric ceramic (32) that is operable in a shear mode.

7. The holding device as claimed in claims 3 and 5, characterized in that the first and second supporting surfaces (30, 31) extend in a plane-parallel fashion to

one another, and in that the cutting edge (21) extends at least approximately parallel to these supporting surfaces (30, 31).

8. The holding device as claimed in one of claims 1 to 7, characterized in that the cutter holder (1) has a groove (10) that has two side walls (11) and a groove base (12), the groove base (12) being designed as an oblique surface and serving as fastening surface for the piezoelectric element (3), and the groove (10) having a width that is greater than the width of a blade holder (22) of the cutter (2).

9. The holding device as claimed in one of claims 1 to 8, characterized in that the piezoelectric element (3) has a piezoelectric crystal or a piezoelectric ceramic (32) and a piezo holder (33), in that the cutter (2) is fastened on the piezoelectric crystal or on the piezoelectric ceramic (32), and in that the piezo holder (33) is arranged on the cutter holder (1).

10. The holding device as claimed in one of claims 1, 4, 5 or 6, characterized in that on one side the piezoelectric element (3) is fastened on a cutter holder block (8), and that the piezoelectric element supports the cutter holder (1) on an opposite side, the cutter (2) being arranged in a fixed position on the cutter holder (1).

11. An ultramicrotome comprising a holding device having an oscillatory cutter (2) as claimed in one of claims 1 to 10, and having a sample holder block (4) and, fastened thereon, an oscillatory sample holder (6) for holding a sample (7) to be cut by means of the cutter (2), characterized in that the sample holder (6) is fastened in a freely suspended fashion on a second piezoelectric element (5), which is connected to the sample holder block (4), it being possible for the

second piezoelectric element (5) to be operated in a shear mode.